



Part Number BBT (1K-10K)

Header BBT Heat-Shrinkable Bus Bar Tubing

Description Thermosleeve-USA BBT (1kV/10kV) is a well insulated and track-resistant, heat-shrinkable polyolefin used to protect rectangular, square and round bus bars found in low or medium voltage switching equipment.

Agency Approval & Compliance ROHS, Halogen Free, Flame Retardant, REACH

Application Thermosleeve-USA BBT (1kV/10kV) is used to protect rectangular, square and round bus bars found in low or medium voltage switching equipment or for inline bolted connections of bus bars.

Shrink Ratio and Operating Temperature BBT (1kV/10kV) is available as a 2:1 material, shrinking to one half (50%) of its supplied size. The tubing's wall thickness also changes proportionally to the degree of recovery.

BBT (1kV/10kV) high temperature heat shrink has a shrink temperature range of 90 degrees C (194 degrees F) to 120 degrees C (248 degrees F) <note: the certification shows a operating temperature of 125°C and a shrink temperature of 90 – 120°C>

Standard Sizes and Dimension



BBT-1kV

Size (inches)	Size (mm)	As Supplied (mm)		After Recovery (mm)		Bus Bar Size	
		Inside Dia. (D)	Wall Thick. (T)	Inside Dia. (d)	Wall Thick. (t)	Rectangle (W)	Round (D)
51/64"	20/10	20±1.0	0.55±0.25	10	1.20±0.25	20	15
1-1/4"	30/15	31.5±1.0	0.55±0.25	15	1.20±0.25	30	20
1-9/16"	40/20	40.5±1.5	0.60±0.30	20	1.20±0.25	40	30
2"	50/25	50.5±2	0.60±0.30	25	1.20±0.25	50	35
2-3/8"	60/30	60±3	0.60±0.30	30	1.20±0.25	60	45
2-3/4"	70/35	70±3	0.60±0.30	32	1.20±0.25	70	50
3"	80/40	80±3	0.70±0.35	40	1.45±0.30	80	55
3-1/2"	90/45	90±4	0.70±0.35	43	1.45±0.30	90	65
4"	100/50	100±4	0.70±0.35	50	1.45±0.30	100	75
5"	120/60	120±4	0.70±0.35	60	1.45±0.30	120	85
6"	150/75	150±4	0.70±0.35	75	1.45±0.30	150	105

SINGLE WALL SPECIALTY HEAT SHRINK TUBING

BBT-1kV Typical Properties

Item	Test Method	Specifications
Shrink Temperature (°C)		90~120°C
Operating Temperature Range (°C)		125°C
Tensile Strength (Mpa)	ASTM D2671	≥10Mpa
Elongation at break (%)	ASTM D2671	≥300
Aging in Circulating-air Oven	ASTM D2671	158.0±2.0°C, 168hrs
After Aging - Tensile Strength (Mpa)	ASTM D2671	≥7.3
After Aging - Ultimate Elongation (%)	ASTM D2671	≥200
Flexibility at -40°C, 4h	ASTM D2671	No cracking
Volume Resistance (Ω.cm)	ASTM D876	≥10 ¹⁴
Dielectric Strength (kV/mm)	ASTM D2671	≥25
Heat shock	200°C±3°C, 4h	No cracking
Oxygen index	ASTM D2863	≥30
Water absorption	ASTM D570A	<0.5%

BBT-10kV

Size (inches)	Size (mm)	As Supplied (mm)		After Recovery (mm)		Cable Range (mm ²)
		Inside Dia. (D)	Wall Thick. (T)	Inside Dia. (d)	Wall Thick. (t)	
3/4"	20/8	20±0.8	1.10±0.30	8	2.60±0.20	20
63/64"	25/10	25±0.8	1.10±0.30	10	2.60±0.20	30
1-1/4"	30/12	30±0.8	1.10±0.30	12	2.70±0.20	30
1-3/8"	35/14	35±0.8	1.10±0.30	14	2.70±0.20	
1-1/2"	40/15	40±1.0	1.10±0.30	15	2.90±0.30	40
1-49/64"	45/18	45±1.0	1.10±0.30	18	2.90±0.30	
2"	50/20	50±2.0	1.10±0.30	20	2.90±0.30	50
2-1/16"	54/24	54±3.0	1.10±0.30	24	2.90±0.30	
2-3/8"	60/24	60±3.0	1.10±0.30	24	2.90±0.30	60
2-1/2"	65/25	65±3.0	1.10±0.30	25	2.90±0.30	
2-61/64"	75/30	70±3.0	1.10±0.30	30	2.90±0.30	
3"	80/32	80±4.0	1.10±0.30	32	2.90±0.30	80/100
3-11/32"	85/35	85	1.10±0.30	35	2.90±0.30	
4"	100/40	100±4.0	1.10±0.30	40	2.90±0.30	100/120

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5"	120/48	120±4.0	1.10±0.30	48	2.90±0.30	150
6"	150/60	150±4.0	1.10±0.30	60	2.90±0.30	200
7"	180/70	180±4.0	1.10±0.30	70	2.90±0.30	

BBT-10kV Typical Properties

Item	Test Method	Specifications
Shrink Temperature (°C)		90~120°C
Operating Temperature Range (°C)		125°C
Tensile Strength (Mpa)	ASTM D2671	≥10Mpa
Elongation at break (%)	ASTM D2671	≥450
Aging in Circulating-air Oven	ASTM D2671	158.0±2.0°C, 168hrs
After Aging - Tensile Strength (Mpa)	ASTM D2671	≥7.3
After Aging - Ultimate Elongation (%)	ASTM D2671	≥200
Flexibility at -40°C, 4h	ASTM D2671	No cracking
Volume Resistance (Ω .cm)	ASTM D876	≥10 ¹⁴
Dielectric Strength (kV/mm)	ASTM D2671	≥25
Heat shock	200°C±3°C, 4h	No cracking
Oxygen index	ASTM D2863	≥30
Water absorption	ASTM D570A	<0.5%

Availability Four-foot lengths, master reels and cut pieces

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**Part Number** MPG (1KV)**Header** MPG Heat-Shrinkable Bus Bar Tubing

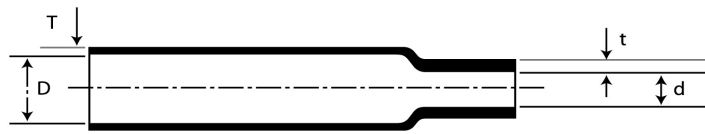
Description Thermosleeve-USA MPG (1KV) is a flexible, low smoke, heavy wall, heat-shrinkable polyolefin used to protect rectangular, square and round bus bars found in low or medium voltage switching equipment. Available in various standard and custom colors.

Agency Approval & Compliance ROHS, Halogen Free, Flame Retardant, REACH

Application Thermosleeve-USA MPG (1KV) is used to protect large equipment, Commercial Industries, Electrical, Bus bars, etc. Provides electrical insulation, protection of wire and cable bundles from corrosion and damage.

Shrink Ratio and Operating Temperature MPG (1KV) is available as a 2:1 material, shrinking to one half (50%) of its supplied size. The tubing's wall thickness also changes proportionally to the degree of recovery.

MPG (1KV) high temperature heat shrink has an operating temperature range of -55°C to 125°C and a shrink temperature of 90°C – 120°C.

Standard Sizes and Dimension**MPG-1kV**

Size (inches)	Size (mm)	As Supplied (mm)		After Recovery (mm)		Bus Bar Size	
		Inside Dia. (D)	Wall Thick. (T)	Inside Dia. (d)	Wall Thick. (t)	Rectangle (W)	Round (D)
51/64"	20/10	20±1.0	0.55±0.25	10	1.20±0.25	20	15
1-1/4"	30/15	31.5±1.0	0.55±0.25	15	1.20±0.25	30	20
1-9/16"	40/20	40.5±1.5	0.60±0.30	20	1.20±0.25	40	30
2"	50/25	50.5±2	0.60±0.30	25	1.20±0.25	50	35
2-3/8"	60/30	60±3	0.60±0.30	30	1.20±0.25	60	45
2-3/4"	70/35	70±3	0.60±0.30	35	1.20±0.25	70	50
3"	80/40	80±3	0.70±0.35	40	1.45±0.30	80	55
3-1/2"	90/45	90±4	0.70±0.35	43	1.45±0.30	90	65
4"	100/50	100±4	0.70±0.35	50	1.45±0.30	100	75
5"	120/60	120±4	0.70±0.35	60	1.45±0.30	120	85
6"	150/75	150±4	0.70±0.35	75	1.45±0.30	150	105

MPG-1kV Typical Properties

Item	Specifications
Shrink Temperature (°C)	90-120°C
Operating Temperature Range (°C)	125°C
Longitudinal Shrink Ratio	±10%
Tensile Strength (Mpa)	≥10Mpa
Elongation at break (%)	≥300
Aging in Circulating-air Oven	158.0±2.0°C, 168hrs
After Aging - Tensile Strength (Mpa)	≥7.3
After Aging - Ultimate Elongation (%)	≥200
Volume Resistivity (Ω .cm)	≥10 ¹⁴
Dielectric Strength (kV/mm)	≥25
Oxygen index	≥30
Water absorption	<0.5%

Availability Continuous reel reels, various colors

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Part Number KYNAR

Header KYNAR Semi-Rigid PVDF Heat Shrink Tubing

Description Thermosleeve-USA KYNAR offers excellent chemical resistant properties and maintains its mechanical strength even at high temperatures. Fabricated from the "Polyvinylidene Fluoride" compound, KYNAR offers excellent resistance and cut through properties along with high dielectric strength. Kynar tubing is usually purchased in clear, which makes it a popular choice when selecting a rugged, high temperature, chemical resistant and transparent heat shrink material. KYNAR heat shrink tubing is flame retardant and has a minimum shrink temperature rating of 150 degrees C (302 degrees F) for KYNAR150 and 155 degrees C (311 degrees F) for KYNAR175.

Agency Approval & Compliance UL, cUL, RoHS, Halogen-Free, MIL, Flame Retardant, UL224, REACH, VW1

Application KYNAR heat shrink tubing provides electrical insulation and strain relief of multipoint connectors and solder joints. Ideal for applications that require dense packing of components or visual inspection of covered components.

Shrink Ratio and Operating Temperature KYNAR has a 2:1 shrink ratio and when fully recovered, the 2:1 material will shrink to one half (50%) of its original supplied diameter.

KYNAR is available in two temperature ranges -55 degrees C (-67 degrees F) to 150 degrees C (302 degrees F) and -55 degrees C (-67 degrees F) to 175 degrees C (347 degrees F)

Standard Sizes and Dimension



Size (inch)	Min. inside diameter as Supplied (mm) (D)	Max. Inside Diameter after recovery (mm) (d)	Recovered Wall Thickness (mm) (t)
3/64	1.2	0.6	0.25 ± 0.05
1/16	1.6	0.8	0.25 ± 0.05
3/32	2.4	1.2	0.25 ± 0.05
1/8	3.2	1.6	0.25 ± 0.05
3/16	4.8	2.4	0.25 ± 0.05
1/4	6.4	3.2	0.33 ± 0.05
3/8	9.5	4.8	0.33 ± 0.05
1/2	12.7	6.4	0.33 ± 0.05
4/3	19.1	9.5	0.43 ± 0.08
1	25.4	12.7	0.48 ± 0.08
1 1/2	38.1	19.1	0.48 ± 0.08

Typical Properties

KYNAR (150 degree C)

Item	Specification
Shrink Temperature (°C)	150°C
Temperature Range (°C)	-55°C ~150°C
Radial Shrinking Ratio (%)	50
Longitudinal Change (%)	≥5
Tensile Strength (MPa)	≥24.5
Ultimate Elongation (%)	≥300
Aging in Circulating-air Oven	225 ±1.0, 168 Hrs
Ultimate Elongation (%) - After Aging	250
Dielectric Voltage Withstand (V)	600
Volume Resistivity (Ω.cm)	≥10 ¹³
Dielectric Strength (kV/mm)	≥15.7
Flammability	Pass
Concentricity (%)	≥50
Heat Shock	No Cracking
Cold Shock	No Cracking
Specific Gravity	1.80

KYNAR (175 degree C)

Item	Specification
Shrink Temperature (°C)	175°C
Temperature Range (°C)	-55°C ~175°C
Radial Shrinking Ratio (%)	50
Longitudinal Change (%)	5
Tensile Strength (MPa)	≥30
Ultimate Elongation (%)	≥150
Aging in Circulating-air Oven	225 ±1.0, 168 Hrs
Ultimate Elongation (%) - After Aging	≥75
Dielectric Voltage Withstand (V)	600
Volume Resistivity (Ω.cm)	≥10 ¹⁴
Dielectric Strength (kV/mm)	≥15.7

Flammability	VW1
Concentricity (%)	≥70

Availability Four-foot lengths, master reels and cut pieces

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**Part Number** FKM**Header** FKM High Temperature Fluoroelastomer Heat Shrink Tubing

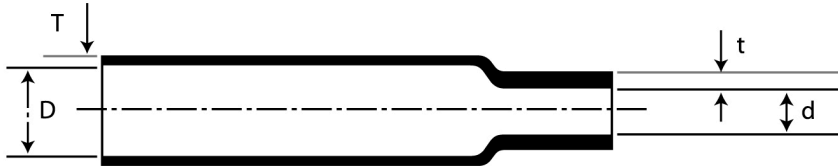
Description Thermosleeve USA FKM offers excellent chemical resistant properties and maintains its mechanical strength even at high temperatures. Manufactured using "Viton" Fluoroelastomer compound, FKM heat shrink tubing is flame retardant and has a minimum shrink temperature rating of 175 degrees C (347 degrees F).

Agency Approval & Compliance UL, cUL, ROHS, Halogen free, SAE, MIL Spec, Flame Retardant, REACH, VW1

Application FKM is the perfect heat shrink tubing solution for protecting a wide assortment of wiring and component covers in a broad range of aircraft/aerospace applications. FKM tubing is also ideal for those applications involving electronic control systems and hydraulic fluid transport mechanisms. Superior in both its chemical resistance properties and its ability to perform in high continuous operating temperatures, this incredibly resilient tubing is also highly abrasive and cut-through resistant. FKM tubing can easily withstand any potential damage that could be caused by an array of fuels, lubricants, acids, and other exceedingly corrosive fluids at extreme temperatures.

Shrink Ratio and Operating Temperature FKM has a 2:1 shrink ratio and when fully recovered, the 2:1 material will shrink to one half (50%) of its original supplied diameter.

FKM operating temperature range -55 degrees C (-67 degrees F) to 200 degrees C (392 degrees F)

Standard Sizes and Dimension**FKM Fluoroelastomer Heat Shrink Tubing**

Size (inch)	Inside Diameter (mm)		Recovered Wall (mm) (t)	Standard Length (m/spool)
	Minimum Expanded as Supplied (D)	Maximum Recovered after Heating (d)		
1/8	3.2	1.6	0.76	50
3/16	4.8	2.4	0.84	50
1/4	6.4	3.2	0.89	50
3/8	9.5	4.8	1.02	50
1/2	12.7	6.4	1.22	30
3/4	19	9.5	1.45	30
1	25.4	12.7	1.78	30
1 1/2	38.1	19.1	2.41	1.22
2	50.8	25.4	2.79	1.22

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FKM (TW) Fluoroelastomer Thin Wall Tubing

Size (inch)	Inside Diameter (mm)		Recovered Wall (mm) (t)	Standard Length (m/spool)
	Minimum Expanded as Supplied (D)	Maximum Recovered after Heating (d)		
1/8	3.2	1.6	0.76	50
3/16	4.8	2.4	0.89	50
1/4	6.4	3.2	0.89	50
3/8	9.5	4.7	0.89	50
1/2	12.7	6.4	0.89	30
5/8	15.9	7.9	1.07	30
3/4	19.1	9.5	1.07	30
7/8	22.2	11.1	1.25	30
1	25.4	12.7	1.25	30
1 1/4	31.8	15.9	1.40	30
1 1/2	38.1	19.1	1.40	1.22
2	50.8	25.4	1.65	1.22

Specifications:

Item	Specification
Shrink Temperature (°C)	175
Temperature Range (°C)	-55 °C to + 200°C
Radial Shrinking Ratio (%)	20
Longitudinal Change (%)	≤10
Tensile Strength (MPa)	≥8.5
Ultimate Elongation (%)	≥250
Aging in Circulating-air Oven	250 ±1.0°C, 168 Hrs
Ultimate Elongation (%) - After Aging	≥200 MPa
Volume Resistivity (Ω.cm)	≥10 ⁹
Dielectric Strength (kV/mm)	≥7.9
Flammability	VW1
Concentricity (%)	≥70
Heat Shock	No cracking or dripping
Cold Shock	No cracking or dripping

Property Comparison with heat shrinkable silicone rubber tubing

Item	FKM Fluoroelastomer Shrinkable tubing	Silicone rubber shrinkable tubing
Operating Temperature (°C)	-55°C~+200°C	-60°C~+200°C
Mechanics	Good	Poor
Acid and alkali resistance	Good	Poor
Oil resistance	Excellent	Normal
Flammability	Good Flame Retardancy	Poor Flame Retardancy
Abrasion resistance	Normal	Poor
Sealing	Good	Poor
Insulation	Normal	Good
Water proof	Good	Normal

Availability Four-foot lengths, master reels and cut pieces

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Part Number RSF

Header RSF Heat Shrinkable Braided Tubing

Description RSF is halogen free, braided cloth fiber heat shrink tubing that is flexible and flame-retardant that combines the protection of braided sleeving with the conforming and bundling abilities of heat shrink tubing. Its woven material provides protection from cuts and chafing, as well as temperature resistance and vibration and noise suppression. An excellent choice for automotive as well as industrial applications, this product protects, conforms and looks great. RSF has a shrink temperature rating of 110 degrees C (230 degrees F).

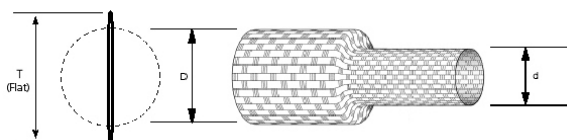
Agency Approval & Compliance RoHS, Halogen Free, Flame Retardant, REACH, VW1

Application RSF heat shrinkable braided tubing provides outstanding mechanical abrasion protection for components such as rubber hoses, plastic pipes and harness wiring bundles.

Shrink Ratio and Operating Temperature RSF has a 2:1 shrink ratio and when fully recovered, the 2:1 material will shrink to one half (50%) of its original supplied diameter.

RSF has a continuous operating temperature rating of -40 degrees C (-40 degrees F) and 125 degrees C (257 degrees F).

Standard Sizes and Dimension



Part No.	As Supplied			After Recovery
	Inside Diameter D (mm)	Inside Diameter D (inch)	Flat Width T (mm)	Inside Diameter d (mm)
CB-RSF-12/6-B	12	1/2"	≥18	≤6
CB-RSF-20/10-B	20	7/8"	≥30	≤10
CB-RSF-30/15-B	30	1-1/4"	≥47	≤15
CB-RSF-40/20-B	40	1-5/8"	≥60	≤20
CB-RSF-50/25-B	50	2"	≥78	≤25
CB-RSF-60/30-B	60	2-3/8"	≥93	≤30
CB-RSF-70/35-B	70	3"	≥108	≤35

Non-Standard Sizes

Part No.	As Supplied			After Recovery
	Inside Diameter D (mm)	Inside Diameter D (inch)	Flat Width T (mm)	Inside Diameter d (mm)
CB-RSF-25/12.5-B	25	1/2"	≥35	≤12.5

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SINGLE WALL SPECIALTY HEAT SHRINK TUBING

CB-RSF-35/17/5-B	35	7/8"	≥54	≤17.5
CB-RSF-80/40-B	80	1-1/4"	≥125	≤40

Basic Performance

Item	Specification
Shrink Temperature (°C)	110°C
Temperature Range (°C)	-40°C ~125°C
Radial Shrinking Ratio (%)	≥50
Longitudinal Change (%)	≤5
Tensile Strength (MPa)	≥10.4
Ultimate Elongation (%)	≥200
Aging in Circulating-air Oven	158 ±1.0, 168 Hrs
Ultimate Elongation (%) - After Aging	≥7.3
Dielectric Voltage Withstand (V)	600
Volume Resistivity (Ω.cm)	≥10 ¹⁴
Dielectric Strength (kV/mm)	≥15
Flammability	VW1
Concentricity (%)	≥70
Heat Shock	4 hr@ 250.0±1.0°C, No cracking
Cold Shock	1 hr@ 30.0±1.0°C, No cracking
Copper Corrosion	24Hr@95%±5, 2°C, No cracking or fading

Availability cut pieces and master reels

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**Part Number** PTFE**Header** PTFE 1.8x High Temp Teflon Heat Shrink Tubing

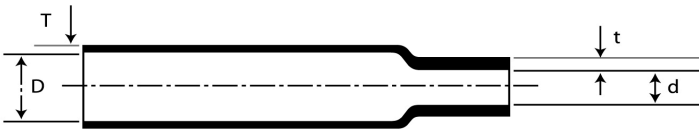
Description Thermosleeve-USA PTFE tubing has superior chemical resistance and very low friction properties. It is designed to provide insulation and mechanical protection in severe chemical and thermal environments. PTFE heat shrink tubing has a high temperature tolerance range, high mechanical strength and extremely low friction properties. Used widely in the medical, aviation, aerospace, and scientific instrumentation industries.

Agency Approval & Compliance ROHS, Halogen Free, SAE, MIL, Flame Retardant, VW1, REACH

Application PTFE is designed to provide insulation and mechanical protection in severe chemical and thermal environments. Used widely in the medical, aviation, aerospace, and scientific instrumentation industries.

Shrink Ratio and Operating Temperature PTFE is available as a 1.8:1 material, shrinking to 45% of its supplied size. The tubing's wall thickness also changes proportionally to the degree of recovery.

PTFE high temperature heat shrink has a continuous operating temperature range of -55 degrees C (-67 degrees F) to 260 degrees C (500 degrees F)

Standard Sizes and Dimension

Size (mm)	Size (inch)	Inside Dia. (mm)		Wall thickness (mm)
		As supplied (D)	After recovery (d)	After recovery (t)
0.5	1/64"	0.7±0.2	≤0.4	0.23
0.8	1/32"	0.8±0.2	≤0.45	0.23
1.0	3/64"	1.0±0.2	≤0.5	0.23
1.5	1/16"	1.5±0.2	≤0.9	0.25
2.0	5/64"	2.0±0.2	≤1.3	0.25
2.5	7/64"	2.5±0.2	≤1.5	0.30
3.0	1/8"	3.0±0.2	≤1.8	0.30
3.5	9/64"	3.5±0.2	≤2.0	0.30
4.0	5/32"	4.0±0.3	≤2.5	0.30
4.5	3/16"	4.5±0.3	≤2.8	0.30
5.0	13/64"	5.0±0.3	≤3.0	0.30
6.0	1/4"	6.0±0.3	≤3.8	0.38
7.0	9/32"	7.0±0.3	≤4.0	0.38

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8.0	5/16"	8.0±0.3	≤4.8	0.38
9.0	3/8"	9.0±0.3	≤5.0	0.38
10.0	13/32"	10.0±0.3	≤6.0	0.38
12.0	1/2"	12.0±0.3	≤7.0	0.38

Typical Properties

Item	Test Method	Unit	Specifications
Shrink Temperature	—	°C	327
Temperature Range	UL224	°C	200
Operating temperature		°C	-55°C to~260°C
Tensile strength	ASTM D638	M Pa	24.5
Elongation at break	ASTM D638	%	350
Bending Modulus	ASTM D790	M Pa	490
Impact Strength	ASTM D256+23°C-54°C J/m		No break, 107
Hardness (shore)	ASTM D2240	Shore D	55
Coefficient of Dynamic Friction			0.1
Flammability	UL-224		VW-1
Dielectric Constant 10 ³ -10 ⁶ Hz	ASTM D150		2.1
Dielectric Dissipation Factor @ 10 ⁶ Hz	ASMT D150		0.0002
Arc Resistance (Stainless Steel Electrodes)	ASMT D495	S	>300
Volume Resistivity	ASTM D257	Ω /cm	>10 ¹⁸
Weather Resistance	"Weather-o-meter" (2000h)		No crack
Fluid resistance	ASTM D543		Excellent
Chemical resistance	ASTM D543		Excellent

Availability Four-foot lengths, master reels and cut pieces

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**Part Number DR****Header DR Diesel Resistant Elastomer Heat Shrink Tubing**

Description Thermosleeve-USA DR is a flexible cross-linked Elastomer heat shrink tubing that provides long-term resistance against diesel, hydraulic fluids and chemicals. Manufactured from a cross-linked elastomeric material, DR heat shrink has been specially formulated to offer both cut and abrasion resistant properties. Ten sizes cover the diameter range from 1/8" (3.2mm) to 3" (76.2mm) and DR has a minimum shrink temperature rating of 175 degrees C (347 degrees F).

Agency Approval & Compliance ROHS, SAE, MIL, Flame Retardant, REACH, VW1

Application DR heat shrink tubing is well suited for protecting wire harnesses and cables where resistance to oil, diesel, hydraulic fluids and chemicals is essential. Common utilization includes transportation and military applications.

Shrink Ratio and Operating Temperature DR has a 2:1 shrink ratio. When fully recovered, the 2:1 material will shrink to fifty percent (50%) of its original supplied diameter.

DR has a continuous operating temperature rating of -65 degrees C (-85 degrees F) and 150 degrees C (302 degrees F)

Standard Sizes and Dimension**Sizes**

Size (Inch)	As Supplied	After Recovery		Standard Packing
	Min ID mm (D)	Max ID mm (d)	Wall-thickness mm (t)	
1/8	3.20	1.60	0.75±0.15	50m
3/16	4.80	2.4	0.82±0.15	50m
1/4	6.40	3.2	0.90±0.15	50m
3/8	9.50	4.75	1.02±0.20	50m
1/2	12.7	6.35	1.22±0.20	30m
3/4	19.1	9.55	1.45±0.28	30m
1	25.4	12.7	1.78±0.28	30m
1-1/2	38.1	19.0	2.41±0.41	30m
2	50.8	25.1	2.79±0.41	1m
3	76.20	38.10	3.18±0.41	1m

Specifications

Item		Specifications
Shrink Temperature (°C)		175
Operating Temperature Range (°C)		—65~150
Tensile Strength (Mpa)		≥11.7
Elongation at Break (%)		≥250
Longitudinal Change		<10
Aging in Circulation-air oven		150°C, 168hrs
After Aging	Tensile Strength (Mpa)	≥10.3
	Elongation at Break (%)	≥200
Volume Resistance (Ω.cm)		1.0x10 ¹¹
Dielectric strength		≥11.9
Water Absorption		≤ 2
Elongation after Fluid Resistance		≥175
After Aging	Tensile Strength (Mpa)	≥10.4
	Elongation at Break (%)	≥200
	Dielectric strength	≥7.9

Availability Four-foot lengths, master reels and cut pieces

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Part Number DS406

Header DS 406 4X Heat Shrink Butt Connectors

Description Thermosleeve-USA DS 406 butt connectors are heat-shrinkable, polyolefin-insulated splices that provide one-step sealing for wire-to-wire splicing applications with an adhesive seal.

Characteristics With adhesive lining, DS406s protect splices from water condensation, salt, and corrosion • Provide strain relief • Protect against vibration in rugged environments • Completely insulate and protect electrical connections • More reliable than conventional splices

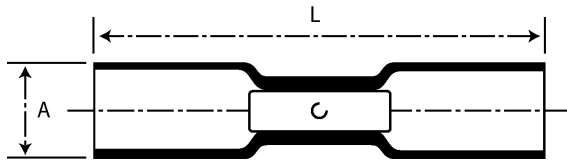
Agency Approval & Compliance ROHS, Halogen Free, REACH

Application For automotive/truck wiring repair and maintenance • Automotive accessories installation • Marine electronics and fleet maintenance • Commercial wiring in outdoor applications (pumps/pools/spas) • Appliances

Shrink Ratio and Operating Temperature DS 406 is available as a 4:1 material, shrinking to one quarter (25%) of its original supplied. The tubing's wall thickness will also change proportionally to the degree of recovery.

DS 406 heat shrink material has a continuous operating temperature range of -55 degrees C (-67 degrees F) to 125 degrees C (257 degrees F)

Standard Sizes and Dimension



Part No.	Butt Splice Dimensions		Color	AWG	mm ²	Wire Dimensions	
	A Min.	L Nom.				Insulation O.D. (Min.)	Insulation O.D. (Min.)
DS406-001	3.68	31.75	Red	22-18	0.5-1.5	3.56	1.40
DS406-002	4.57	31.75	Blue	16-14	1.5-2.5	4.45	2.03
DS406-003	6.35	38.10	Yellow	12-10	3-6	6.22	2.79

Typical Properties

Item	Specification
Shrink Ratio	4:1
Operating Temperature Range (°C)	-55°C ~125°C
Cut-through Resistance	31 Kg
Flammability	Non-Flame Retardant
Wire Pullout After Crimping & Recovery	Red: 11.3Kg; Blue 22.7Kg; Yellow: 27.2 kg

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Solvent Resistance	Isopropyl alcohol, trichloroethylene, gasoline, battery acid, diesel fuel, motor oil, antifreeze, brake fluid, 5% salt water
Dielectric Strength	2500VAC
Insulation Resistance	1000 megaohm at 100VDC

Selector Guide

Wire Size AWG	mm ²	Part No.	Color
22-18	0.8-0.95	DS406-001	Red
16-14	1.2-2.5	DS406-002	Blue
12-10	3-6	DS406-003	Yellow

Availability Bulk and 25-piece bags

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Part Number OFS

Header OFS Heat Shrinkable Optical Fiber Protector

Description Thermosleeve-USA OFS is made from specially designed cross-linked polyolefin with an adhesive liner. OFS heat shrinkable optical fiber splice connectors provide excellent strength and protection to optical fiber splices. RoHS compliant.

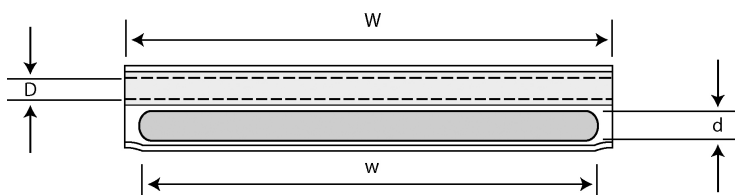
Agency Approval & Compliance ROHS, Halogen Free, REACH

Application Used for fiber optic mechanical splicing in Telecommunications and LAN networking applications.

Operating Temperature OFS has a 2:1 heat shrinkable sleeve that shrinks to one half (50%) of its original size. The tubing's wall thickness will also change proportionally to the degree of recovery.

OFS optical fiber splices have a continuous operating temperature range of -55 degrees C (-67 degrees F) to 105 degrees C (221 degrees F)

Standard Sizes and Dimension



Type	Length (W) (mm)	Hot Melt Tube (mm)		Stainless Steel (mm)		Packaging
		ID (D)	Length (W)	OD (d)	Length (w)	
Large Size						
OFS-60B	60±1.0	1.4±0.05	60±1.0	1.5±0.05	55±1.0	100pcs/bag
OFS-45B	45±1.0	1.4±0.05	45±1.0	1.5±0.05	40±1.0	100pcs/bag
OFS-40B	40±1.0	1.4±0.05	40±1.0	1.5±0.05	36±1.0	100pcs/bag
OFS-23B	23±1.0	1.4±0.05	23±1.0	1.5±0.05	18±1.0	100pcs/bag
Mid Size						
OFS-61M	61±1.0	1.3±0.05	61±1.0	1.2±0.05	55±1.0	100pcs/bag
OFS-60M	60±1.0	1.3±0.05	60±1.0	1.2±0.05	56±1.0	100pcs/bag
OFS-45M	45±1.0	1.3±0.05	45±1.0	1.2±0.05	40±1.0	100pcs/bag
OFS-40M	40±1.0	1.3±0.05	40±1.0	1.2±0.05	36±1.0	100pcs/bag
OFS-30M	30±1.0	1.3±0.05	30±1.0	1.2±0.05	26±1.0	100pcs/bag
OFS-25M	25±1.0	1.3±0.05	25±1.0	1.2±0.05	21±1.0	100pcs/bag

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Small Size						
OFS-60S	60±1.0	0.5±0.05	60±1.0	1.0±0.05	56±1.0	100pcs/bag
OFS-40S	40±1.0	0.5±0.05	40±1.0	1.0±0.05	36±1.0	100pcs/bag
OFS-60SA	60±1.0	1.3±0.05	60±1.0	1.0±0.05	56±1.0	100pcs/bag
OFS-40SA	40±1.0	1.3±0.05	40±1.0	1.0±0.05	36±1.0	100pcs/bag
Micro Size						
OFS-40T	40±1.0	0.5±0.05	40±1.0	0.5±0.05	40±1.0	100pcs/bag
OFS-25T	25±0.5	0.5±0.05	25±0.5	0.5±0.05	25±0.5	100pcs/bag
OFS-18T	18±0.5	0.5±0.05	18±0.5	0.5±0.05	18±0.5	100pcs/bag
OFS-15T	15±0.5	0.5±0.05	15±0.5	0.5±0.05	15±0.5	100pcs/bag
OFS-10T	10±0.5	0.5±0.05	10±0.5	0.5±0.05	10±0.5	100pcs/bag

Typical Properties

Item	Test Method	Specifications
Shrink Temperature (°C)	—	≥90
Operating Temperature Range (°C)	—	—55~110
Tensile Strength (Mpa)	ASTMD2671	≥18
Ultimate Elongation (%)	ASTMD2671	700
Dielectric Strength (kV/mm)	IEC 243	20
Coefficient of electrical breakdown	IEC 243	2.5max
Longitudinal Shrink Ratio	ASTMD2671	≤+5

Availability Bulk and 100-piece bags

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Part Number TSGEC

Header TSGEC Heat Shrink End Caps

Description Thermosleeve-USA TSGEC Heat Shrink End Caps come with spiral adhesive coating that effectively protects cable endings against oxidation, ozone, and UV-radiation. Our TSGEC easily fits into the cable ending.

Minimum fully shrink temperature: 120°C.

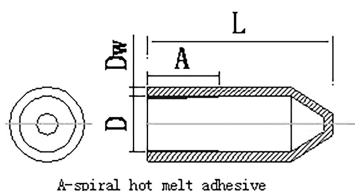
Agency Approval & Compliance ROHS, and REACH compliant

Application TSGEC GEC is recommended for applications both in open air and underground power distribution cables with PVC, lead or XLPE sheaths.

Shrink Ratio and Operating Temperature TSGEC is available as a 2:1 material, shrinking to one half (50%) of its supplied size and $\leq 10\%$ along the axis. The tubing's wall thickness also changes proportionally to the degree of recovery.

Thermosleeve-USA TSGEC Heat Shrink End Caps has a minimum shrink temperature of 120°C (248°F)

Standard Sizes and Dimensions



Part Number	As supplied (mm)		After recovered (mm)			
	L*($\pm 10\%$)	D*(Min.)	A*($\pm 10\%$)	d*($\pm 10\%$)	l*($\pm 10\%$)	Dw*($\pm 10\%$)
TSGEC 105 12/4	40	12	15	4	40	2.6
TSGEC 110 14/5	45	14	18	5	42	2.2
TSGEC 115 20/6	65	20	25	6	55	2.5
TSGEC 120 25/8.5	70	25	30	8.5	65	2.5
TSGEC 130 35/16	92	35	35	16	83	3.3
TSGEC 135 40/16	95	40	40	15	75	3.3
TSGEC 140 55/26	114	55	50	26	105	3.5
TSGEC 150 75/36	132	75	55	36	115	4.2
TSGEC 160 100/52	153	100	70	52	130	5
TSGEC 170 120/60	155	120	70	60	150	5
TSGEC 180 145/60	160	145	70	60	150	5
TSGEC 190 160/82	160	160	70	82	133	4.5
TSGEC 200 200/90	170	200	70	90	145	4.5

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D* = Inner diameter as supplied
d* = Inner diameter after fully recovered

w* = Wall thickness after fully recovered
A* = Length of adhesive
L* = Length of end cap

Technical Properties

Test Items	Test Method	Test Requirement
Tensile strength	ASTMD2671	12MPa min
Ultimate Elongation	ASTMD2671	200% min
Volume Resistivity	IEC 93	10 ¹⁴ Ω.cm min
Dielectric Strength	IEC 60243	12kN/mm (1.0mm)
Water Absorption	ISO 62	0.5% max.
Heat Shock @ 225°C/4Hrs	ASTMD2671	No cracking, dropping
Density	ASTMD792	1.0~1.1g/cm ³

TSGEC tubing shall be homogeneous and essentially free from flaws, defects, pinholes, bubbles, seams, cracks and inclusions. Standard color is black.

Standard color: Black

Availability In standard lengths

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Part Number TSGBK

Header TSGBK Low Voltage Cable Breakouts

Description Thermosleeve-USA TSGBK Low Voltage Cable Breakout is made from irradiated cross-linked polyolefin. This specifically designed formulation provides the tubing with a low shrink temperature, fire-retardance properties, and flexibility. It also meets RoHS and other environmentally concerned standards. TSGBK comes in 2, 3, 4, and 5-core cable breakouts.

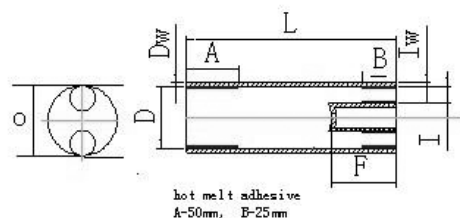
Agency Approval & Compliance ROHS, and REACH compliant

Application TSGBK molded polyolefin is designed for breakouts. It is suitable for applications in low voltage cable terminations where electrical insulation and waterproofing is essential.

Shrink Ratio and Operating Temperature TSGBK is available as a 2:1 material, shrinking to one half (50%) of its supplied size and $\leq 10\%$ along the axis. The tubing's wall thickness also changes proportionally to the degree of recovery.

TSGBK low voltage cable breakouts have a continuous operating temperature range of -55 degrees C (-67 degrees F) to 135 degrees C (275 degrees F). Working temperature: 150°C (302 degrees F).

Standard Sizes and Dimensions

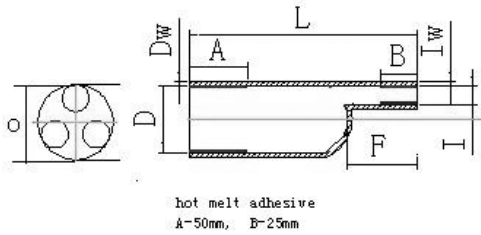


2-Core Cable Breakouts

Size (mm)	As supplied (mm) $\pm 10\%$		D (mm)		I (mm)		Recovered wall (mm) $\pm 10\%$		Recovered wall (mm) $\pm 20\%$	
	L *	F *	a* (Min.)	b* (Max.)	a* (Min.)	b* (Max.)	L	F	Dw	Iw
TSGBK205-22/8	55	16	22	12	11	3.5	60	18	2.2	1.8
TSGBK210-30/12	80	22	30	14	14	4.5	84	21	2.6	2.4
TSGBK215-40/16	100	30	40	16	15	5	110	30	2.2	2.2
TSGBK220-60/23	95	21	60	23	25	8	105	25	2.4	2.4
TSGBK230-90/60	165	45	90	60	30	8	170	48	3	3
TSGBK250-160/90	290	170	160	92	50	30	310	160	4.5	4.5

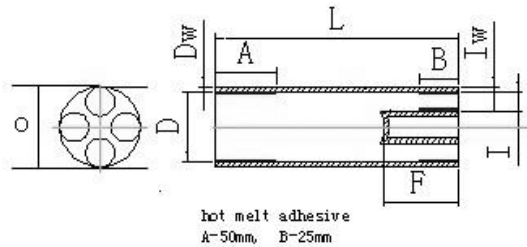
SINGLE WALL SPECIALTY HEAT SHRINK TUBING

3-Core Cable Breakouts



Size (mm)	As supplied (mm) ± 10%		D (mm)		I (mm)		Recovered wall (mm) ±10%		Recovered wall (mm) ±20%	
	L *	F *	a* (Min.)	b* (Max.)	a* (Min.)	b* (Max.)	L	F	Dw	Iw
TSGBK310-38/16	100	35	38	16	15	5	110	30	2.3	2
TSGBK320-60/25	170	40	60	25	26	8	175	45	3.2	2.8
TSGBK325-70/28	175	45	70	28	32	10	180	45	3.3	3
TSGBK330-80/38	190	50	80	38	34	16	195	55	3.5	3.3
TSGBK340-110/50	220	55	110	50	46	19	230	60	3.8	3.5
TSGBK350-125/57	230	58	125	57	55	20	240	65	3.7	3.3
TSGBK360-140/70	250	58	140	70	62	26	270	68	3.9	3.6
TSGBK370-170/77	250	55	170	77	75	28	270	68	3.9	3.6

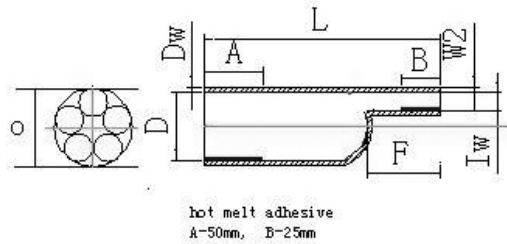
4-Core Cable Breakouts



Size (mm)	As supplied (mm) ± 10%		D (mm)		I (mm)		Recovered wall (mm) ±10%		Recovered wall (mm) ±20%	
	L *	F *	a* (Min.)	b* (Max.)	a* (Min.)	b* (Max.)	L	F	Dw	Iw
TSGBK410-40/15	95	23	40	15	12	5	100	24	2.2	2
TSGBK420-55/21	145	40	55	21	20	5.5	150	42	2.9	2.7
TSGBK425-65/26	170	45	65	26	25	7.5	180	50	3.3	3.1

TSGBK430-75/26	18 0	45	75	26	28	7.5	190	50	3.3	3.1
TSGBK440-82/37	17 0	46	82	37	30	11	180	45	3.3	3
TSGBK445-90/37	17 0	46	90	37	32	11	180	50	3.3	3
TSGBK450-100/4 7	18 0	55	100	47	38	12	190	55	3.9	3.3
TSGBK460-125/5 2	21 5	50	125	52	50	15	240	68	4	4
TSGBK470-160/7 0	24 0	50	160	70	64	20	270	68	3.8	3.7

5-Core Cable Breakouts



Size (mm)	As supplied (mm) ± 10%		D (mm)		l (mm)		Recovered wall (mm) ±10%		Recovered wall (mm) ±20%	
	L *	F *	a* (Min.)	b* (Max.)	a* (Min.)	b* (Max.)	L	F	Dw	lw
TSGBK510-40/19	90	20	40	19	13	4.5	85	20	2.5	2.2
TSGBK520-55/24	145	36	55	24	18	5.5	150	40	3	2.6
TSGBK530-80/33	160	46	80	33	26	8	175	50	3.2	3
TSGBK540-100/4 2	185	52	100	42	35	10	195	55	3.5	3.2

Technical Properties

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	≥13 MPa
Tensile strength after thermal aging	ASTM D 2671 /120°C, 168 hrs.	≥10 MPa
Ultimate elongation	ASTM D 2671	≥300%
Ultimate elongation after thermal aging	ASTM D 2671 /120°C, 168 hrs.	≥250%
Dielectric strength	IEC 243	≥15 kV/mm
Volume resistance	IEC 93	≥1013 Ω.cm
Water absorption	O 62	≤1%

TSGBK tubing shall be homogeneous and essentially free from flaws, defects, pinholes, bubbles, seams, cracks and inclusions. Standard color is black.

12753 Moore St. Cerritos, CA 90703 Local (562) 404-9998 Fax (562) 404-9698 Nationwide (800) 421-3536
Order Fax (800) 421-3538 E-mail sales@thermosleeve-USA.com Website http://www.thermosleeve-usa.com

Standard color: Black

Availability 2, 3, 4, 5-core cable breakouts

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